

Beyond Risk and Protective Factors: Rethinking the Role of Stress in Regulating Child Development and Resilience

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Two Pathways to Resilience

- Adaptations to stress
 - Stress shapes (cf. impairs) cognition to match local conditions
 - Children developing under stressful condition become good at thinking and reasoning in certain ways
 - Supports a strength-based approach that works with, instead of against, these adaptations to stress.*
- Harnessing adolescent goals and motives to alter school climate and safety
 - Meaningful Roles for youth: Antibullying intervention
 - recognizing the motives of adolescents who bully, attempts to divert their behavior towards more prosocial activities
 - Adaptive, goal-driven approach

Traditional Deficit Model

- Dominant approach to understanding the effects of early-life stress on social and cognitive functioning has many names
 - cumulative stress
 - toxic stress
 - diathesis-stress
 - allostatic load.
- Focuses on impairments in learning and behavior
- Emphasizes “what’s wrong with youth”
 - from harsh, unpredictable environments.
 - Assumes at-risk youth are somehow broken and need to be fixed*

Is the Deficit Model Enough?

- Deficit approach has powerfully influenced policy, intervention, and education.
- However, if deficit approach is **incomplete**
 - critically misses how people adapt to their environments
 - fine-tuning cognitive abilities to solve recurrent problems faced in their local ecologies
 - → people will suffer while well-intentioned intervention efforts and resources are utilized in suboptimal ways.

Developmental Adaptation to Stress

- Argue for an alternative strength-based approach that asks: “What’s right with these youth?”
- Don’t question assumption that early-life stress undermines certain cognitive abilities
 - may be only half of the story.
 - other half is that individuals who develop in harsh environments may specialize their abilities to match high-adversity contexts.

Developmental Adaptation to Stress

- What actually happens to individuals growing up on harsh, neglectful, and/or unpredictable conditions?
- Consider the story of Michael Meaney (McGill University) and his rats.

Meaney's Rats



Ecological Stressors

- Danger/Unpredictability

Mother-Infant Interactions

- ↓ Licking and grooming of pups
- ↓ Arched-back nursing
- Earlier ages at weaning

Offspring Stress Physiology

- ↑ HPA responses to stressors
- ↑ Sympathetic adrenomedullary reactivity
- ↑ Vulnerability to stress-induced illness

Memory and Learning in Pups

- ↓ Performance on tests of spatial learning and memory under standard conditions

Biobehavioral Adjustment in pups

- ↑ Rates of fear-induced behavior
- ↑ Vulnerability to cocaine and alcohol use

- ↑ Learning and memory under stressful conditions

- Earlier onset of puberty in females
- ↑ play fighting in young males
- ↑ sexual attractivity/proceptivity of females
- ↑ lordosis in response to male mounts
- ↑↑ rates of pregnancy following mating
- ↓ parental investment in own offspring

People

- Danger/Unpredictability

- Harsh, rejecting, insensitive, inconsistent parenting

- ↑ HPA responses to stressors
- ↑ Inflammatory tone
- ↑ Vulnerability to stress-induced illness

- ↓ Performance on standard tests of intelligence, language, memory, and other abilities

- ↑ Early onset and prevalence of psychopathology
- ↑ Vulnerability to drug and alcohol use

Ecological Stressors

Parent-child Interactions

Child Stress Physiology

Memory and Learning in Children

Biobehavioral Adjustment



- ↑ Tailoring of emotion systems, arousal responses, and perceptual abilities to detection and monitoring of danger
- ↑ Insecure attachment; mistrustful internal working model
- ↑ risky-aggressive behavior;
- ↑ immediate gratification
- ↑ early puberty and sexual debut; enhanced early fertility
- ↓ parental investment in own offspring

Developmental Adaptation to Stress

■ Specialization hypothesis (Frankenhuis & de Weerth, 2013,

Current Directions in Psychological Science):

- harsh, unpredictable environments do not generally impair cognition
- instead, people's minds become developmentally adapted (“specialized” and thus enhanced) for solving problems that are ecologically relevant—and most beneficial for thriving—in such environments.

People

- Danger/Unpredictability

- Harsh, rejecting, insensitive, inconsistent parenting

- ↑ HPA responses to stressors
- ↑ Inflammatory tone
- ↑ Vulnerability to stress-induced illness

Low Inhibitory Control

- ↑ Early onset and prevalence of psychopathology
- ↑ Vulnerability to drug and alcohol use

Ecological Stressors

Parent-child Interactions

Child Stress Physiology

Memory and Learning in Children

Biobehavioral Adjustment



High Task-Switching Ability

- ↑ Insecure attachment; mistrustful internal working model
- ↑ risky-aggressive behavior;
- ↑ immediate gratification
- ↑ early puberty and sexual debut; enhanced early fertility
- ↓ parental investment in own offspring

Sensitization Hypothesis

- Investigated the contexts (Mittal et al., in press, *Journal of Personality and Social Psychology*)
 - older adolescents who experienced different levels of childhood stress/unpredictability
 - show **enhanced or diminished** inhibitory control and shifting attention
- Drawing on animal behavior research, hypothesized that childhood adversity is most likely to influence later cognitive function when adolescents are currently under duress.*
 - Random assignment to state-stress manipulation of economic decline/chaos

5 Signs the Economy is Getting Worse

Rising Unemployment



Unemployment has been increasing.
Many believe things will only get worse.

5 Signs the Economy is Getting Worse

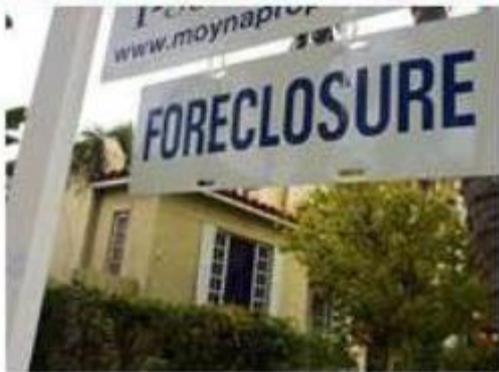
Prices are Going Up



A dollar is becoming worthless. Prices of food, gas, and other necessities are continuing to rise.

5 Signs the Economy is Getting Worse

Lack of Affordable Housing



Many people now live month to month.
Paying rent might become more difficult.

5 Signs the Economy is Getting Worse

Jobs Are Going Away

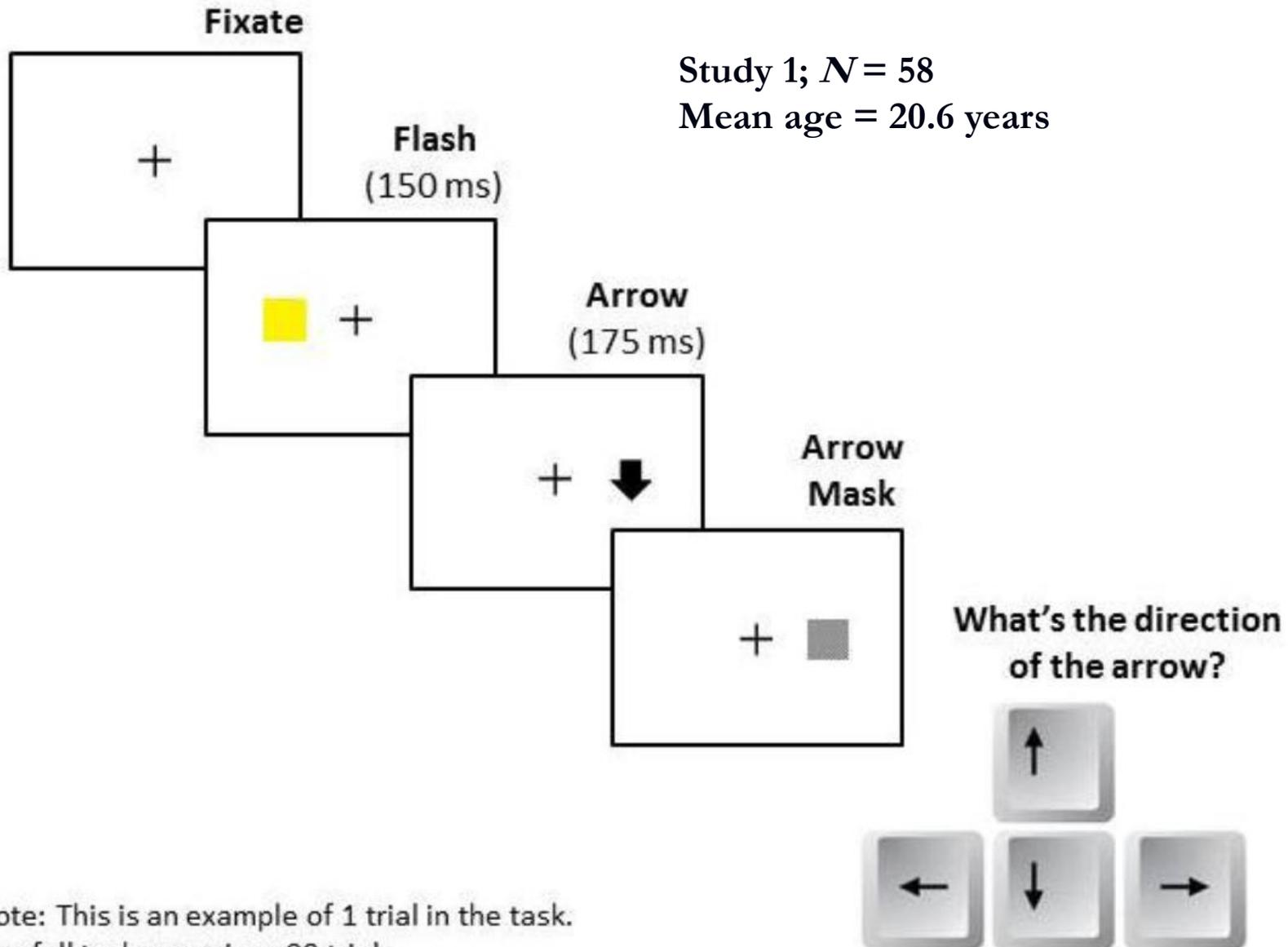


Many businesses are closing or moving away.
This means fewer jobs.

FIGURE 1: INHIBITION TASK

Study 1; $N = 58$

Mean age = 20.6 years



Note: This is an example of 1 trial in the task.
The full task comprises 90 trials.

FIGURE 3: SHIFTING TASK

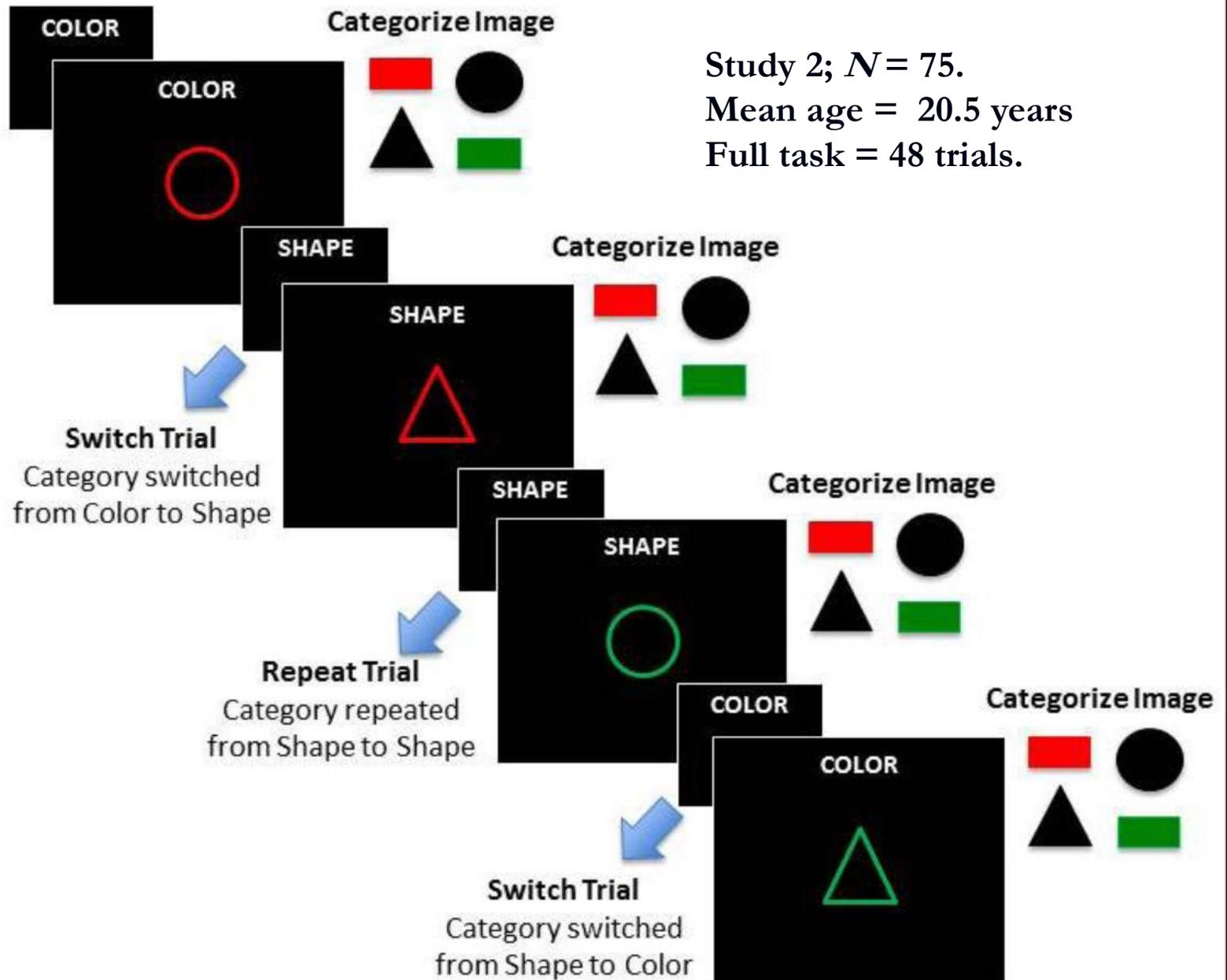
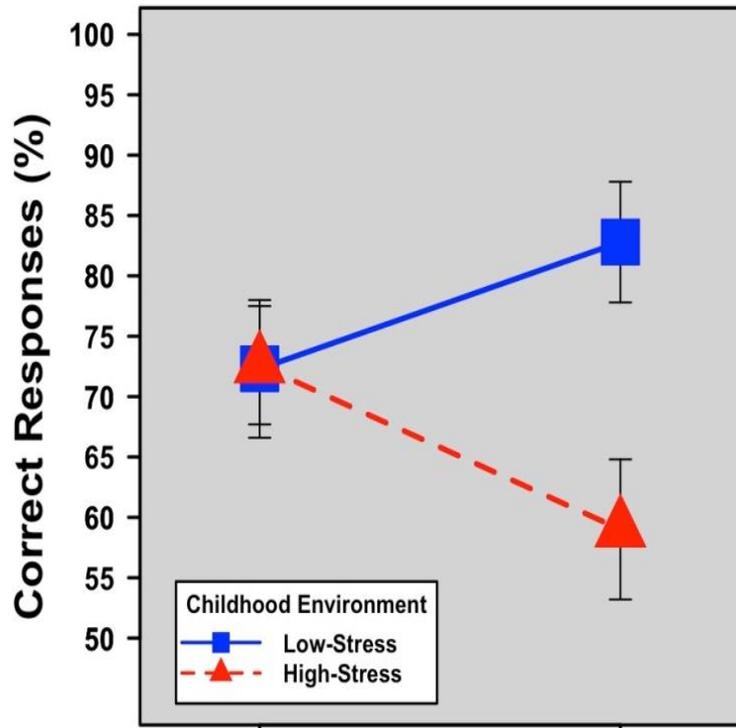


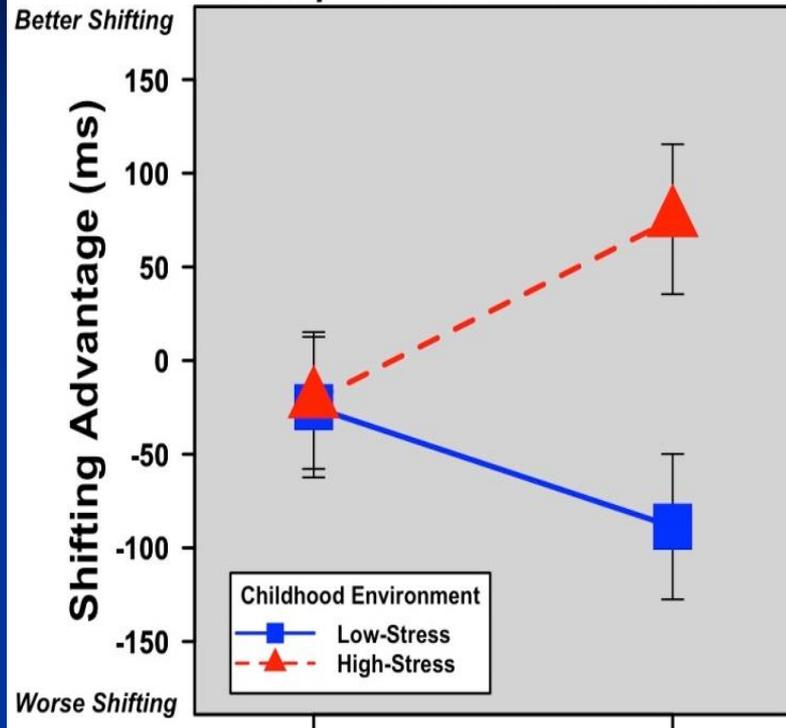
Fig. 1: Performance on inhibition task



Control

Economic Decline/
Future Unpredict.

Fig. 2: Performance on shifting task



Control

Economic Decline/
Future Unpredict.

Conclusion

- First experiment demonstrating the conditions under which exposure to a harsh childhood environment leads to improved adult cognitive functioning on a major task.
- Exposure to harsh childhoods had specific and opposite effects on two major types of executive functioning
 - consistent with notion that shifting, but not inhibition, is more useful and adaptive in unpredictable environments (see Nederhof, Ormel, & Oldehinkel, 2014).

Conclusion

- The deficit approach to studying at-risk youth from chaotic, unpredictable environments is not enough.
 - Only half of the story
- Moving beyond “What’s wrong with these youth?” toward a strength-based approach focusing on “What’s right with these youth?”*
- Work with these strengths to design better educational and job training interventions.
 - **Attentional flexibility in the form of enhanced attention-shifting is linked to better contingency-based learning; that is, more attentionally flexible people contact and respond to immediate environmental contingencies more quickly than less attentionally flexible people.**

Applying this approach to improving school climate and safety

- Bullying is a problem that affects adolescents worldwide.
- Efforts to prevent bullying have proven to be modestly successful, at best, or iatrogenic, at worst.
- Argue today that to successfully address bullying
 - Need to work in the context of youth identity, goals, and self-regulatory processes.
- Present a new antibullying program that
 - actually attempts to work with youth goals and motivations.
 - Status, recognition, social centrality
- To achieve prosocial alternatives to bullying behavior

Functional Analysis

- Focuses on the **functional basis** of social behavior
 - on what behavior is *for* in terms of adaptively-relevant goals and motives.
- Calls attention to instrumentality of both **prosocial** and **antisocial** strategies (Ellis et al., 2012; Hawley, 1999).
 - Social and material goals can be achieved in groups through antisocial means
 - theft, bullying, trickery, or threatening harm,
 - Prosocial means
 - participating in friendly relationship-building cooperation and reciprocation.

Functional Analysis

- **Bullying** is an antisocial strategy for controlling resources
- Defined by evolutionary psychologists as *aggressive goal-directed behavior that causes harm to another individual within the context of a power imbalance* (Volk, Dane, & Marini, 2014).
 - Emphasis on goals and motives underscores the **equifinality** of different social strategies
 - goals attained through bullying can potentially be achieved through prosocial means as well.

Bullying is a pervasive social strategy

- Bullying occurs almost equally across socioeconomic levels (Tippett & Wolke, 2014) and is widespread across time and place.
 - documented in all modern cultures surveyed (Due et al., 2005; Smith, 1999),
 - by anthropologists studying modern hunter-gatherers (e.g., Briggs, 1970; Turnbull, 1972),
 - by historians documenting past cultures (e.g., Cunningham, 2005; Hsiung, 2005).
 - common among social animals, from fish to chickens to chimpanzees, where it promotes access to physical, social, and sexual resources (e.g., Alcock, 1988; Goodall, 1986).
- Pervasiveness of bullying challenges false stereotypes about the social incompetence or cognitive deficits of bullies.

“What’s In It for the Kids?” who Engage in Bullying and Antisocial Behavior

- What does bullying do?
 - increases resource acquisition, social status and centrality, and mating opportunities (Ellis et al., 2012)
 - Effective social strategy for leveraging many things that adolescents care about.
 - Needs to be kept front and center (identify, goals, motives)



From an evolutionary perspective, what current anti-bullying interventions may be misguided or wiser for us not to conduct?

- Widespread adoption of zero-tolerance policies require that bullies stop their behavior
 - without consideration for why the bullies bully in the first place
 - *Can we realistically expect bullies to give up a successful social strategy simply because we ask them to?*
- Adolescents are adapted to engage in bullying when the conditions are right
 - zero-tolerance—without altering the larger ecology of bullying—may just lead bullies to conceal their behavior more carefully.
- Fourteen randomized intervention studies conducted in the U.S. or Canada
 - yielded a weighted mean odds ratio of 1.06, indicating a non-significant effect of these programs on bullying (Ttofi & Farrington, 2011).

Promote Alternative Methods for achieving goals/resources

- Interventions need to work within the goal structures of bullies
 - substitute effective, evolutionarily-informed prosocial strategies that yield outcomes and incentives that are comparable to those achieved through bullying.
- Few interventions actually focus on teaching and rewarding prosocial, alternative strategies for bullies
 - Enable them to obtain the desired goals of resources, dating/sex, status/social centrality.

Meaningful Roles Intervention

(Ellis, Volk, Gonzalez, & Embry, submitted)

- Behavioral vaccine
 - everyone in school participates
 - identified bullies do not even know that they have been identified and targeted in the intervention.
- *Meaningful Roles* provides every student in the target school with a job (meaningful role).
 - embedded in context of frequent verbal and written recognition for prosocial behavior (praise notes).
 - jobs carefully designed and allocated to provide students with an alternative, prosocial way to obtain status, resources, and recognition.
 - execution of these jobs works with, rather than against, intrinsic personality motives for gaining status and recognition.

Meaningful Roles Intervention

- Builds on a core principle of adolescent development
 - increasing importance of meaningful roles and clearly visible contributions to the group as a basis for social status (Schlegel & Barry III, 1991).
- Inherent in Meaningful Roles is a shift away from students as recipients in a school run by adults **toward students as vital resources in their school community.**
 - provides abundant opportunities for every student to participate and engage in the school community
 - each role important to the overall success of the school.

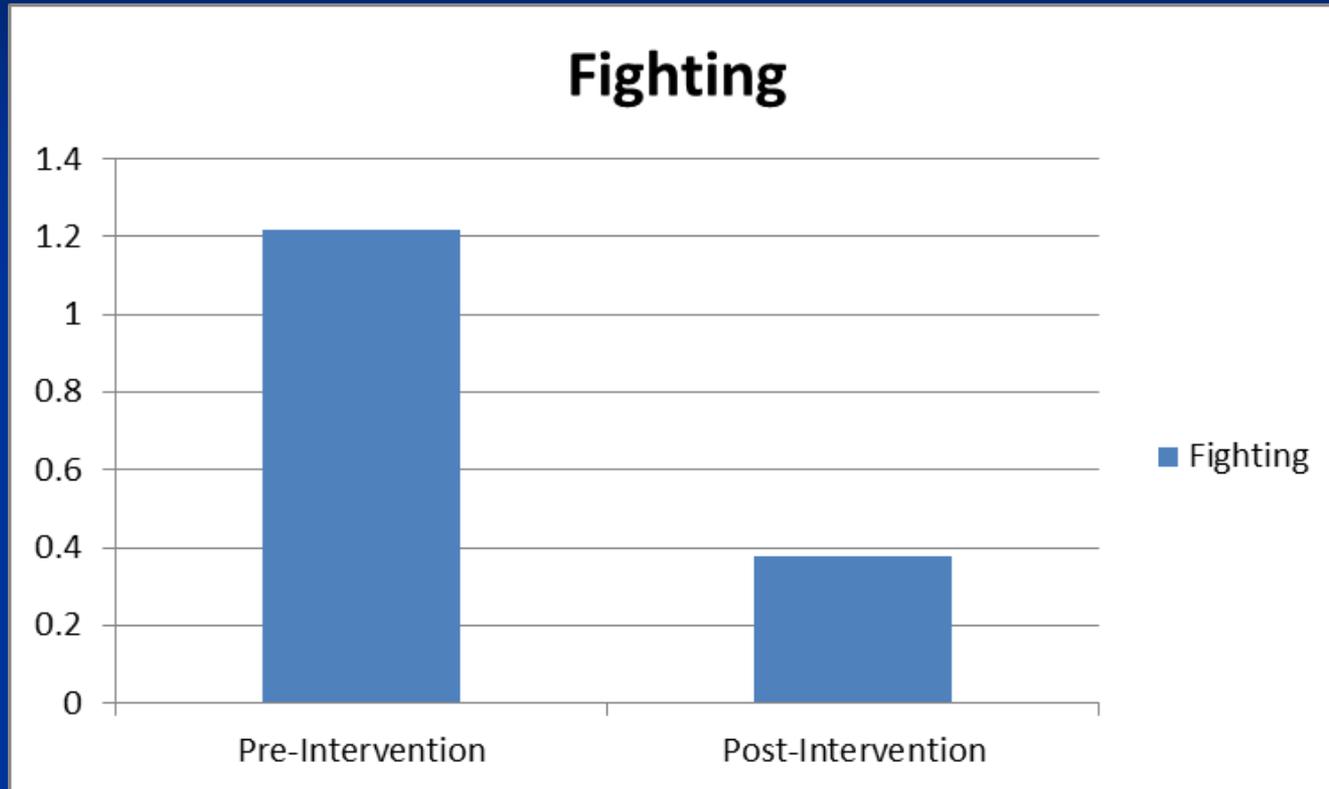
Meaningful Roles Intervention

- Piloted at Logan Middle School in Illinois
 - The staff sets up a committee on meaningful roles for students.
 - student members.
 - staff members.
- Goal to increase “jobs” of all kinds for students.

Meaningful Roles Intervention

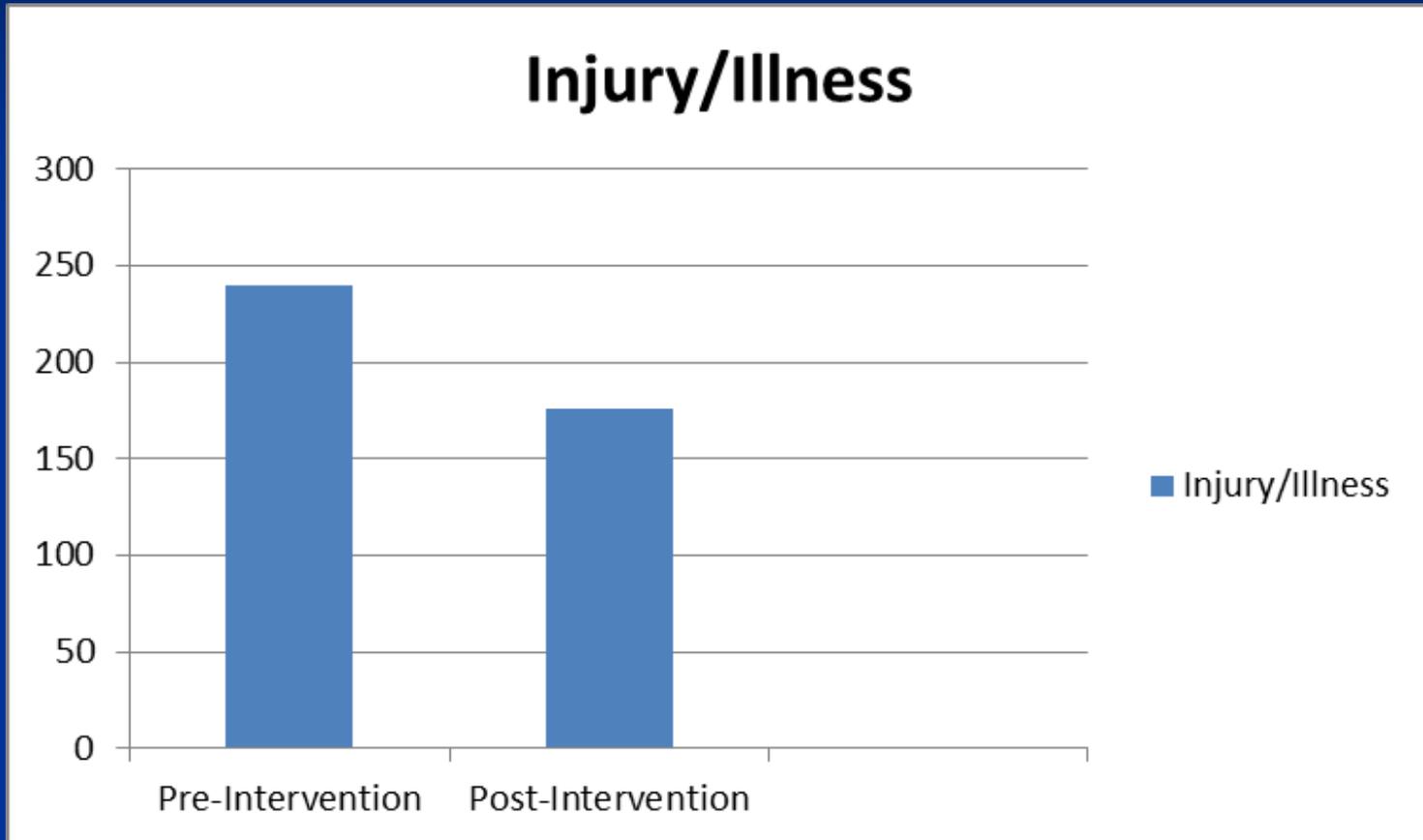
- *Meaningful Roles* works by first identifying the bullies (through anonymous peer or teacher nominations)
 - specifically placing them in high-status jobs that enable them to obtain social centrality, recognition, and respect through prosocial means.
 - Ex: Door greeter
 - Jobs are rotated to ensure fairness
- The identified bullies are purposely paired with identified highly competent students
 - socially adept students who are neither bullies nor victims
 - for modeling and guidance in their jobs.
 - Praise notes are chief public mechanism for recognizing students for their jobs.
- Implemented over one school year

Compares school year before *Meaningful Roles* to school year with *Meaningful Roles* (school-level data)



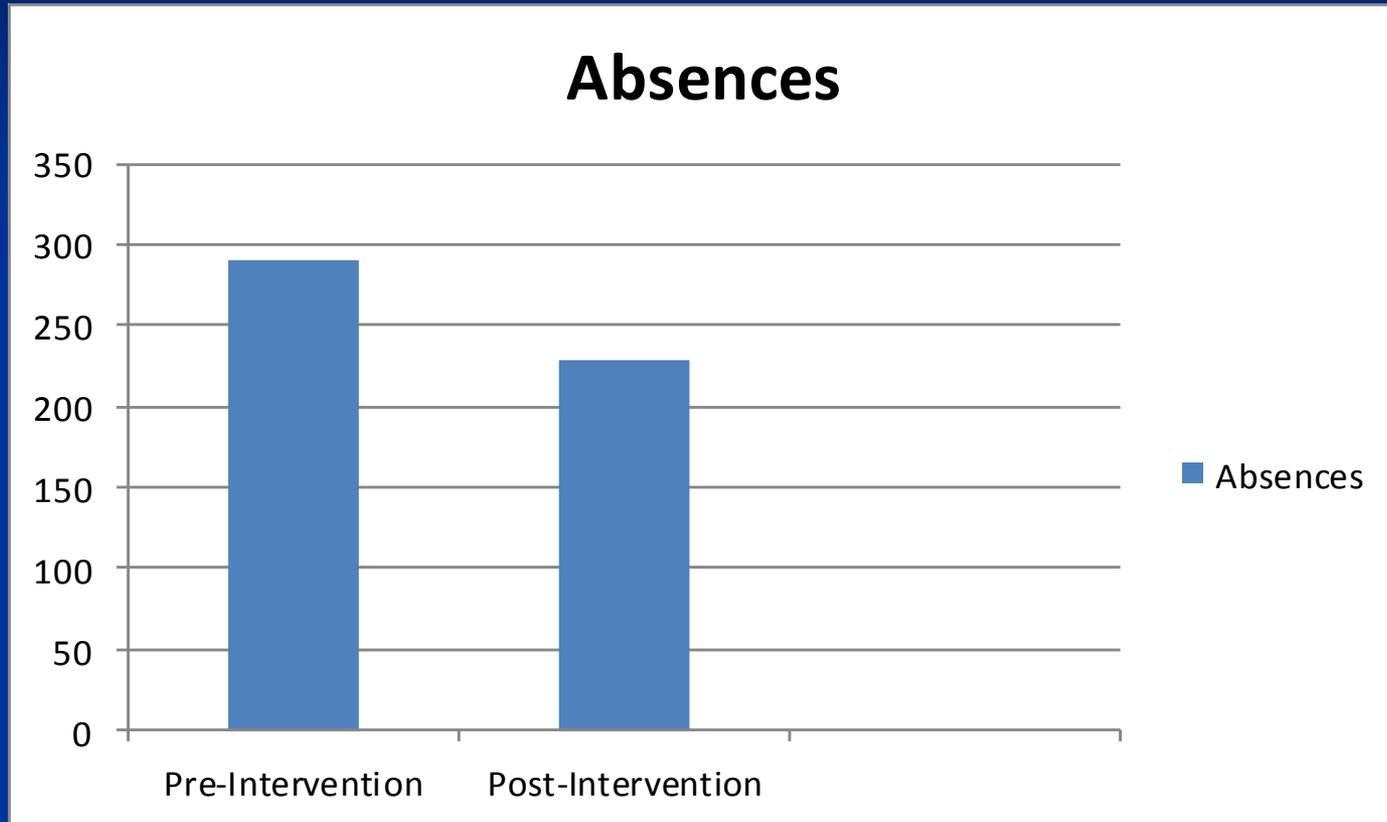
Monthly incidence of fights; *Cohen's d* = .62

Compares school year before *Meaningful Roles* to school year with *Meaningful Roles* (school-level data)



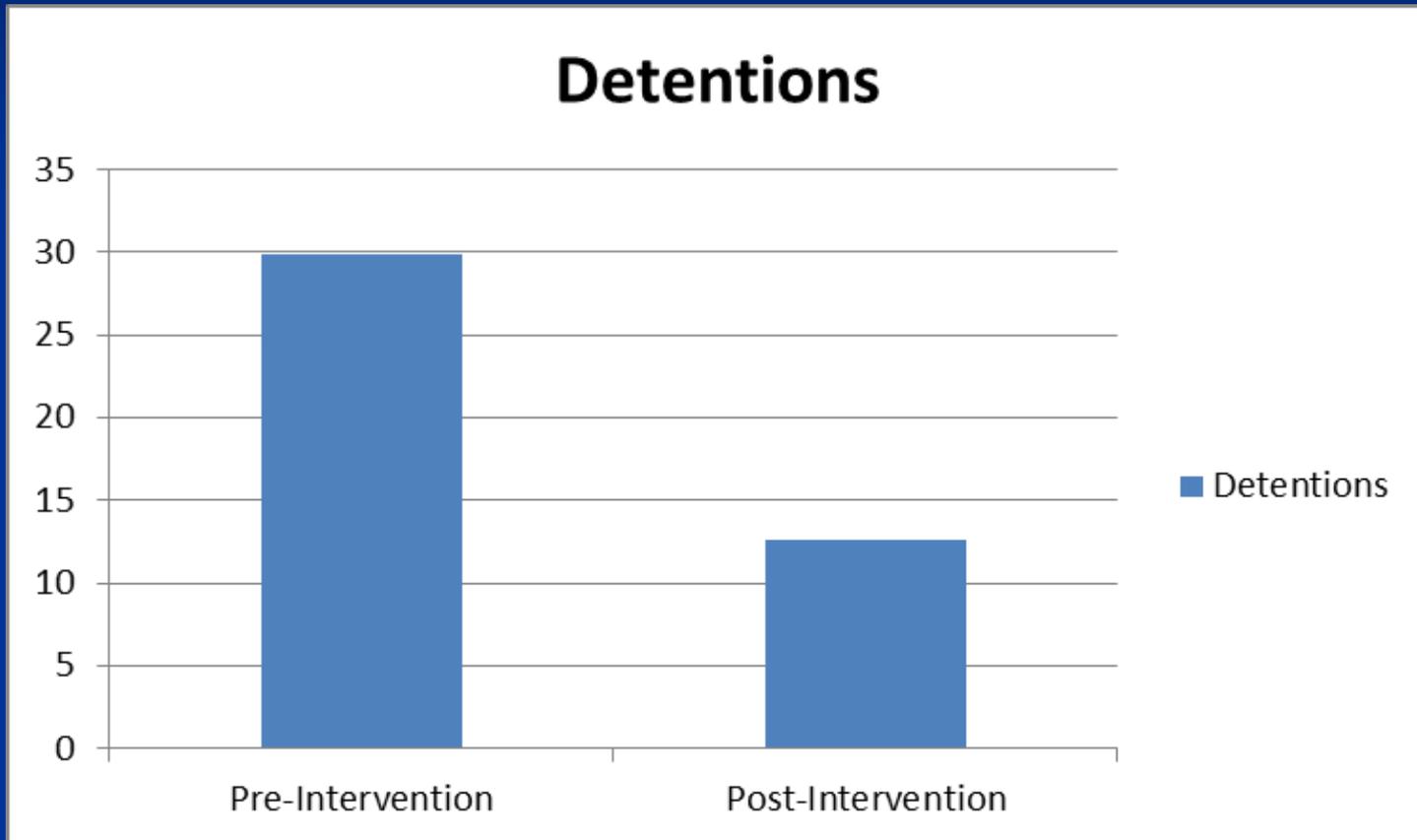
Monthly injury/illness rates; *Cohen's d* = .92

Compares school year before *Meaningful Roles* to school year with *Meaningful Roles* (school-level data)



Monthly absences; *Cohen's d* = .89

Compares school year before *Meaningful Roles* to school year with *Meaningful Roles* (school-level data)



Monthly detention rates; *Cohen's d* = 1.82

Conclusions

- We present, for first time, a proof-of-concept for a novel aggression/bullying intervention : **Meaningful Roles**.
- Founded on evolutionary view of bullying as an adaptive social strategy that is regulated by ecological cost-benefit decisions (Ellis et al., 2012; Volk et al., 2014).
 - Past interventions that have focused largely (or solely) on increasing the costs of bullying have proven to be very expensive and/or ineffective (Merrell et al, 2008; Ttofi & Farrington, 2012).
 - Meaningful Roles implemented a relatively inexpensive program to address the benefits of bullying and aggression

Conclusions

- Guided by evolutionarily-inspired hypothesis
 - bullying could be reduced if perpetrators were offered prosocial alternatives that effectively met the same goals as their original antisocial aggression.
 - Emphasis on meaningful, high-status, prosocial activities
- To our knowledge, Meaningful Roles is first intervention to take this approach with school bullying (or aggression).

Conclusions

- Results suggest that Meaningful Roles
 - not iatrogenic
 - that furnishing aggressive students with functional prosocial alternatives may indeed ameliorate aggressive and problem behaviors at school.
- Successful prevention-intervention depends on working with instead of against adolescent goals and motivations.
- May be that by helping structure adolescents' social opportunities at school, we can enhance prosocial behaviors by offering adolescents adaptive solutions that satisfy their status-related goals.
 - fits squarely in the tradition of interventions that promote *positive youth development*
- Needs to be evaluated in an RCT or case-control

Overall Conclusions

- As resilience researchers, we are fundamentally interested in risk and protective factors.
 - Darkness that faces certain children and how they emerge from that darkness
- Two take-home messages
 - 1. Need to see through the darkness to leverage what it gives us.
 - Beyond risk and protective factors toward adaptations to stress
 - Why should knowledge about the cognitive strengths of youth who are adapted to harsh, unpredictable environments (of which we know so little) be any less useful than knowledge about their impairments (of which we know so much)?*

Overall Conclusions

- 2. The darkness—antisocial strategies to obtain resources—is part of the peer landscape.
 - Status, social centrality, resources, sex
- You cannot just take successful strategies away
 - Zero-tolerance or other punitive policies mostly don't work.
 - Have to give something in return
 - Consider goals and motivation
- Increase the density of reinforcement for prosocial behavior
 - Target Aggressive, disruptive kids with meaningful roles and responsibilities where they become noticed and accepted by peers for doing the opposite of what they normally do.

Thank you

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